



Biophytis[®]

LIVE HEALTHIER LONGER



September 2020 | Euronext, EPA: ALBPS

Forward Looking Statements

All statements pertaining to future financial and/or operating results, future growth in research, clinical development, and potential opportunities for Biophytis SA and its subsidiaries (the “Company”) and its products, along with other statements about the future expectations, beliefs, goals, plans, or prospects expressed by management constitute forward-looking statements.

Any statements that are not historical fact (including, but not limited to, statements that contain words such as “will,” “believes,” “plans,” “anticipates,” “expects,” “estimates”) should also be considered to be forward-looking statements.

By their nature, forward-looking statements involve risks and uncertainties, including, without limitation, risks inherent in the development or commercialization of potential products, uncertainty in the results of clinical trials or regulatory approvals, need and ability to obtain future capital, and other risks, please refer to the Risk Factors (“Facteurs de Risque”) section of the Listing Prospectus upon the admission of Company’s shares for trading on the regulated market Euronext Growth of Euronext Paris filed with the AMF, which is available on the AMF website (www.amf-france.org) or on the Company’s website (www.biophytis.com).

Actual results may differ materially from the results anticipated in these forward-looking statements and as such should be evaluated together with the many uncertainties that affect the Company's business. Any forward-looking statements that we make in this presentation speak only as of the date of such statement, and we undertake no obligation to update such statements to reflect events or circumstances after the date of this presentation, except as required by law.

Overview

Sarconeos (BIO101) for Sarcopenia

Sarconeos (BIO101) for Covid-19

Sarconeos (BIO101) for DMD

Macuneos for dry AMD



A clinical-stage biotechnology company specialized in age-related diseases



Our goal

Prevent disabilities (mobility and vision) and increase **health span** for patients suffering from **age-related diseases**

Small molecules derived from plants which stimulate **biological resilience** developed by **reverse pharmacology**



Covid-19 & Neuromuscular diseases

Drug Candidate **Sarconeos (BIO101)** in clinical development for :

Covid-19 phase 2/3
Respiratory Failure resulting from Sars-Cov2 infection

Sarcopenia: Clinical phase 2b
A geriatric chronic muscular dystrophy

Duchenne's Muscular Dystrophy (DMD): IND granted
A pediatric genetic muscular dystrophy



Retinal diseases

Pre-clinical drug candidates
Macuneos

for diseases of the retina, such as Dry Age-related Macular Degeneration (AMD) and Stargard's disease

Modern drug discovery process, inspired by traditional medicine

Our technology

Reverse pharmacology for drug candidates in Age Related diseases

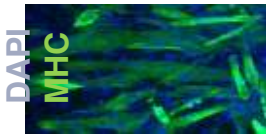
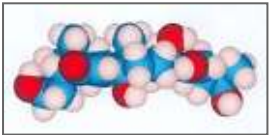
Build a proprietary collection of natural molecules & analogs from medicinal plant, produced under biotic or abiotic stress

Screen in cellular models of age related diseases and identification of targets & pathways



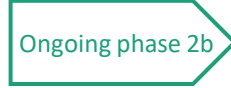



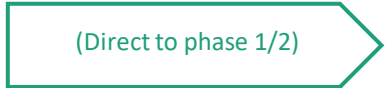


Selection of best drug candidates based on animal models of aging or genetic diseases

- Sarconeos (BIO 101)
- Macuneos

- Small molecules: natural and/or NCE
- New target key for aging
- Preclinical proof-of-concept & safety
- IP on use, process and composition of matter



Our clinical pipeline for worldwide development

Candidates	Indications	Program	Preclinical	Phase 1	Phase 2	Phase 3
Sarconeos (BIO101)	Sarcopenia	SARA				
	Covid-19	COVA				
	DMD	MYODA				
Macuneos	Dry AMD	MACA				
	Stargardt					

- Second generation drug candidates, BIO103 and BIO203, are life-cycle extension candidates in the preclinical Phase



Key clinical milestones

- COVA (Phase 2/3) started in Belgium, approved in the UK, France, the US and Brazil
- COVA interim analysis end of part 1 by Q4 2020
- SARA-INT (Phase 2b) patient enrollment completed March 2020
- SARA-INT topline results expected by H1 2021
- MYODA IND (Phase 1/2) approved in the US and Belgium
- MYODA First Patient in Q4 2020

Executive team



Stanislas Veillet - Founder & CEO

- PhD in genetics, AgroParisTech
- 25+ years in biotech; Pharmacia-Monsanto, Danone Group



Samuel Agus - CMO

- MD, PhD, Board-certified Neurologist
- 15+ years pharma/biotech experience including Abbott, Shire and Teva Pharmaceuticals



Pierre Dilda - CSO

- 20+ years experience in pharmaceutical research, in both academic and industrial settings
- 50+ scientific publications



Wally Diah - COO

- PhD in phytopathology (Paris XI) and MBA
- 21+ years biotech experience in France and the U.S. and R&D at Monsanto



Evelyne Nguyen- CFO

- 25+ years of experience in Corporate Finance for International Pharma & Biotech companies (BMS, LFB)
- Expertise in cross-borders transactions between Europe, US and Asia

Overview

Sarconeos (BIO101) for sarcopenia

Sarconeos (BIO101) for Covid-19

Sarconeos (BIO101) for DMD

Macuneos for dry AMD

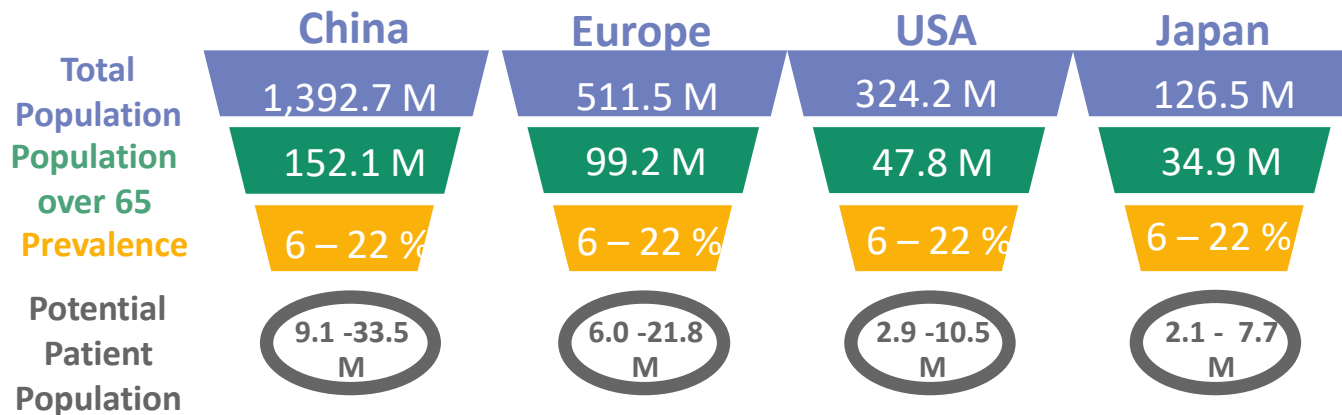


Sarcopenia: a large unmet medical need with no approved drug

- Age-related degeneration of skeletal muscle characterized by **a loss of muscle mass, strength and functional issues** such as the ability to stand and/or walk
- A major cause of mobility disability, resulting in **a loss of independence and increased risk of adverse events (for example falls)**, which can shorten life expectancy

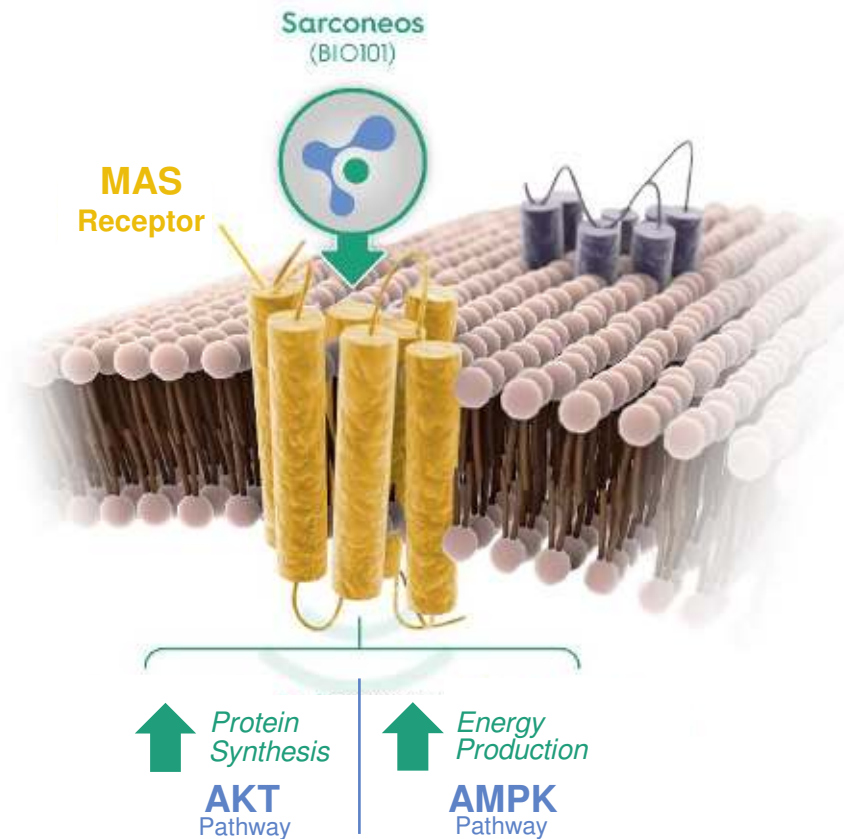
Sarconeos (BIO101):

- ✓ Only drug candidate currently being tested in Phase 2 for sarcopenia
- ✓ Myostatin inhibitors halted for lack of efficacy in neuromuscular diseases



Sarconeos (BIO101) activates MAS receptor, a key factor for muscle metabolism

- MAS receptor: a key component of the Renin-Angiotensin System (RAS)
- Trigger two important downstream pathways in myocytes:

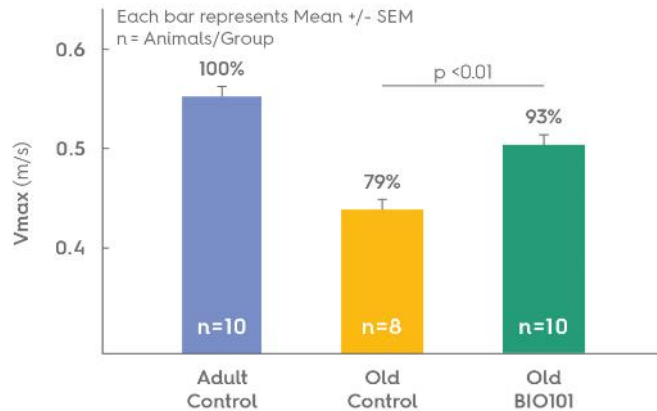


PI3K/AKT/mTOR: Increases **protein synthesis**, preserving muscle mass and increasing **muscle strength**

AMPK/ACC Stimulates **energy production**, increasing muscle strength and **mobility**

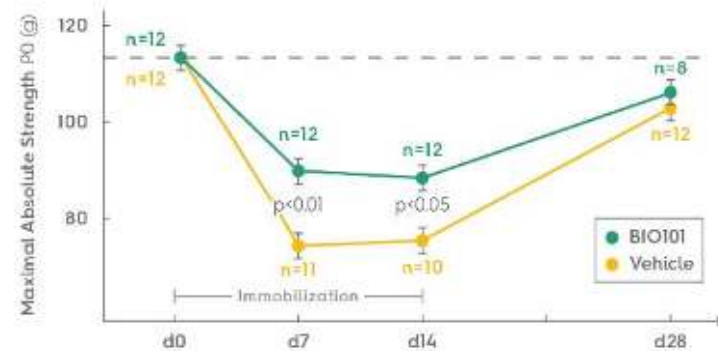
Sarconeos (BIO101) improves muscle strength and mobility in animal model

Beneficial effect on mobility in aged mice fed with high fat diet¹



Administration of 50 mg/kg/day of Sarconeos (BIO101) demonstrated a statistically significant ($p < 0.01$) improvement in maximum running velocity (Vmax) compared to “old” control mice, compensating almost completely for the loss of mobility due to aging

Preservation of muscle strength in immobilized mice



Administration of 50 mg/kg/day of Sarconeos (BIO101) demonstrated a preservation of muscle strength while immobilized (d0-d14) compared to vehicle control in hindlimb-immobilized mice

1. Results were presented in a poster at the SCWD conference in December 2016 in Berlin, Germany.

- Global, multicenter, double-blind, randomized, placebo-controlled trial
- Recruitment completed March 2020 for 231 elderly patients with sarcopenia at risk of mobility disability over 22 centers in the US and Belgium

Objectives	Key Endpoints	Inclusion Criteria
<ul style="list-style-type: none">• Assess safety and efficacy of two doses of Sarconeos (BIO101) administered orally with a meal over 26 weeks, compared to placebo• Treatment effect on improvement of physical function and on decrease of risk of mobility disability	<p>Primary</p> <ul style="list-style-type: none">• 400-meter walk test (400MWT) - 0.05 m/s is considered the minimal meaningful change <p>Key secondary</p> <ul style="list-style-type: none">• Handgrip strength• 400MWT responder analysis• Patient reported outcomes (PRO)	<ul style="list-style-type: none">• Age (≥ 65 or over)• Low mobility measured by Short Performance Physical Battery (SPPB) ≤ 8 out of 12• DEXA body composition as measured by ALM/BMI (appendicular lean mass/ body mass index)• Able to exercise for 30 minutes per day 5 days per week

SARA-INT: patient enrollment completed March 2020



“The SARA-INT Phase 2 trial is investigating a new treatment for sarcopenia, a disease of aging which is characterized by loss of muscle mass and function.”

Dr. Roger Fielding, PhD, Director of the Nutrition, Exercise Physiology & Sarcopenia Laboratory at **Tufts University** in Boston and Principal Investigator of SARA-INT trial

Product	2019	2020	2021
175 & 350 mg (twice daily) of Sarconeos (BIO101)	SARA-INT Phase 2b		

- **No safety issue** to date, with multiple DSMB “may proceed” opinions.
- An **Interim analysis** is planned to re-assess the sample size
- Completion of the study, and reporting is expected for **H1 2021**, depending on Covid-19 pandemic evolution

Overview

Sarconeos (BIO101) for sarcopenia

Sarconeos (BIO101) for Covid-19

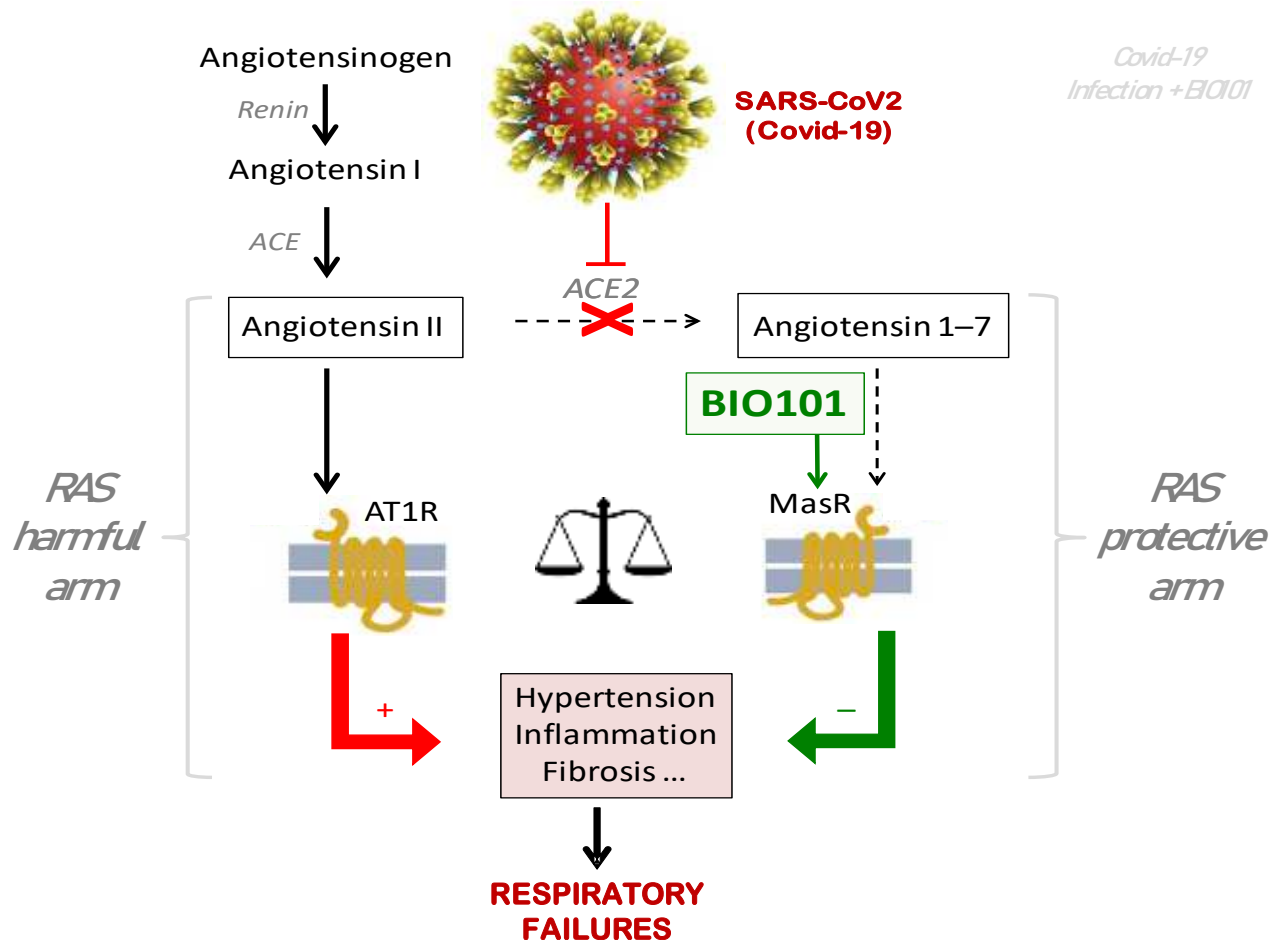
Sarconeos (BIO101) for DMD

Macuneos for dry AMD



Sarconeos (BIO101) stimulates respiratory functions by activating RAS

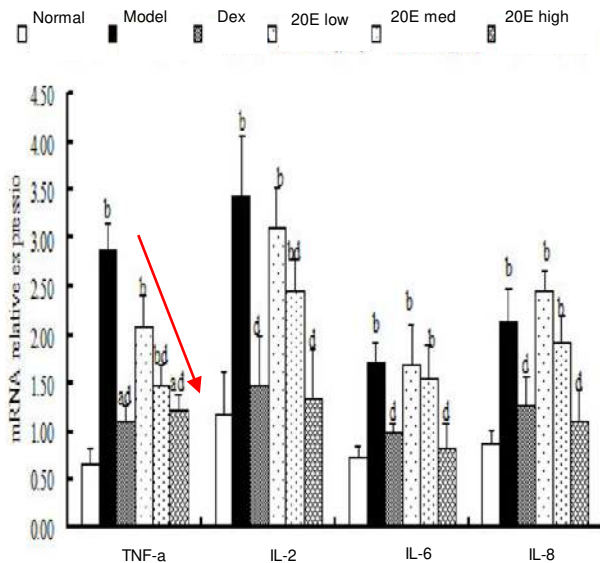
- Sars-Cov-2 uses ACE2 to penetrate into the lungs destabilizing RAS system and causing respiratory failures
- Sarconeos (BIO101) activates MAS receptor, a key component of the protective arm of the RAS system, and re stimulates respiratory function



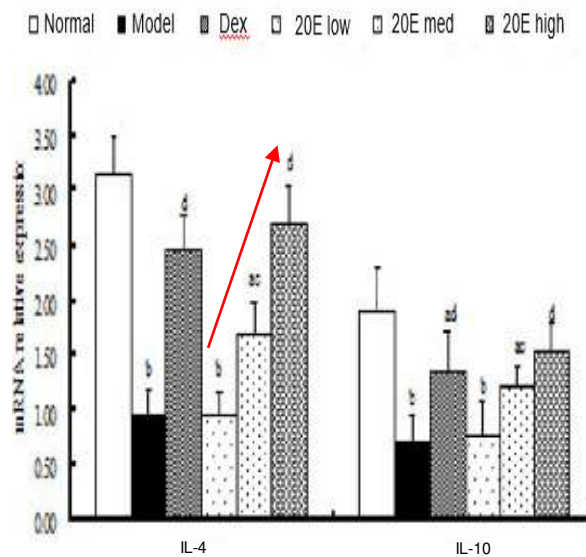
Sarconeos (BIO101) has anti-inflammatory effects in acute lung injury mice model (ALI)



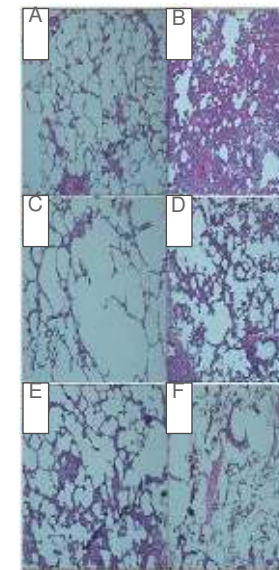
Dose-dependent decrease of pro-inflammatory cytokines



Dose-dependent increase of anti-inflammatory cytokines



Dose-dependent improvement of lung lesional profile



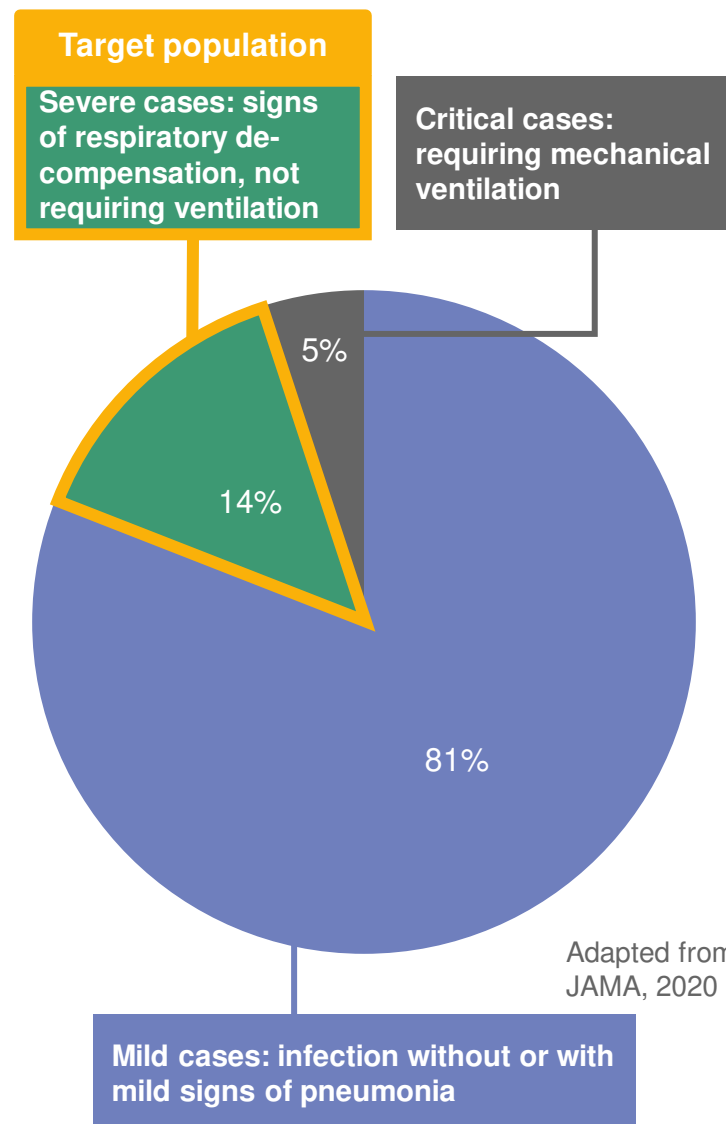
A/ Normal
B/ LPS
C/ Dex
D/ 20E low-dose
E/ 20E med-dose
F/ 20E high-dose

Song et al. 2019

Reduction of pro-inflammatory cytokines (TNF Alpha) and increase in anti-inflammatory cytokines (IL4)

Target population: severe respiratory manifestations, not intubated

- Patients **aged 65 and above**, with proven Covid-19, respiratory symptoms:
 - With evidence of respiratory decompensation ≤ 4 days before start of study medication, meeting one of the following:
 - Tachypnea: ≥ 25 breaths per minute
 - Arterial oxygen saturation $\leq 92\%$, on Oxygen at least 3L/min
- Allowed medications: antimalarial, antibacterial and antiviral agents, anti-inflammatory agents and ACE inhibitors / ARB



Adapted from Wu et al. JAMA, 2020

The COVA study: Sarconeos (BI0101) to prevent respiratory deterioration linked to Covid-19



<ul style="list-style-type: none"> • A phase 2/3 study • Multinational, multi-centric • Double-blind, placebo controlled • Group sequential (2 parts), adaptive design • Sarconeos (BI0101) 350mg BID vs. placebo 	Part	Goal	Number of participants
	1	1. Obtain safety and tolerability data on BIO101 in the target population	50
		2. Obtain an indication of activity for BIO101 in the target population	1:1 randomization
	2	Re-assess the sample size for step 2	155 (an addition of 105 subjects) 1:1 randomization
Confirmation of the effect of BIO101 in preventing further respiratory deterioration and obtaining a conditional approval		310 (an addition of 155 subjects) 1:1 randomization	

Product	2020	2021
350 mg of Sarconeos (BI0101)		



Overview

Sarconeos (BIO101) for sarcopenia

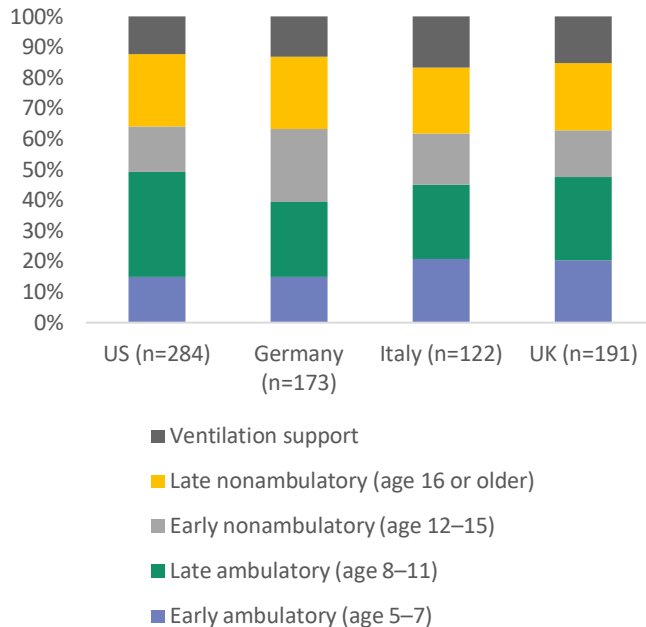
Sarconeos (BIO101) for Covid-19

Sarconeos (BIO101) for Duchenne's muscular dystrophy (DMD)

Macuneos for dry AMD

DMD: No cure and limited treatment options

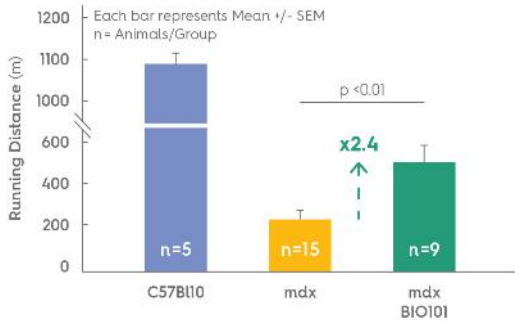
Proportion of ambulatory class in DMD¹



- Rare, genetic neuromuscular disease in male children characterized by accelerated degeneration of muscles, responsible for loss of mobility, respiratory failure and cardiomyopathy, leading to premature death.
- No known cure and limited treatment options, including corticosteroids and targeted therapies (exon-skipping in U.S. & stop codon in EU) that treat approximately 13% of DMD patients with specific genetic mutations.
- Myostatin inhibitors have been developed in DMD by large pharma (Pfizer, Roche) without success
- We received orphan drug designation (ODD) in 2018 from the FDA and EMA for Sarconeos (BIO101) in DMD.
- **We are developing Sarconeos (BIO101) to address all stages of DMD progression, independent of gene mutation and regardless of ambulatory state**

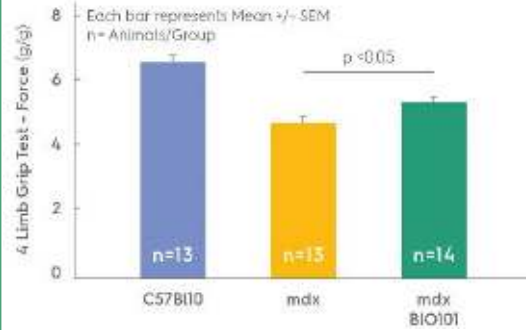
Proof-of-concept in *mdx* mice models of DMD: Improvements in mobility, strength and respiration

Improved mobility as measured by running distance¹



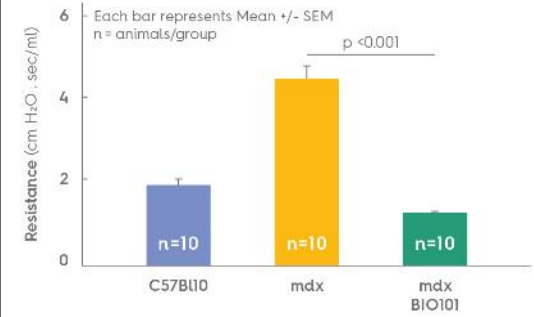
C57BL10-*mdx* mice treated with 50 mg/kg/day of Sarconeos (BIO101) over 8 weeks ran **2.4x farther** than untreated control C57BL10-*mdx* mice

Improved muscle strength, as measured by four-limb grip-test force¹



C57BL10-*mdx* mice treated with 50 mg/kg/day of Sarconeos (BIO101) over 8 weeks showed an approximate **14% improvement** in strength as compared to untreated control C57BL10-*mdx* mice

Improves the time-dependent degradation of respiratory function²



Chronic (8 week) daily administration of 50 mg/kg/day of Sarconeos (BIO101) **significantly (p < 0.001) improved respiratory function** measured by airway resistance

MYODA-INT: IND granted by FDA to start Phase 1-2 end 2020



Product	2020	2021	2022	2023
Sarconeos (BIO101)				

Design	Patients	Regulatory Status
<ul style="list-style-type: none"> Global, multicenter, double-blind, placebo-controlled, seamless, Phase 1-2 clinical trial Part 1: Safety, tolerability & PK (initial 7 days of dosing of escalating dose of Sarconeos) Part 2: Efficacy of Sarconeos (Respiratory and muscle function after dosing for 52 weeks) 	<ul style="list-style-type: none"> Ambulatory and/or non-ambulatory DMD patients: <ul style="list-style-type: none"> Phase 1-2: 48 patients Enrollment in the U.S. and EU Patient advocacy group support <ul style="list-style-type: none"> AFM Téléthon in France 	<ul style="list-style-type: none"> Pre-IND correspondence with the FDA in October 2018 Scientific advice meeting with the EMA in December 2018 IND and European regulatory filings in November 2019 FDA – IND granted 12/2019



Overview

Sarconeos (BIO101) for sarcopenia

Sarconeos (BIO101) for Covid-19

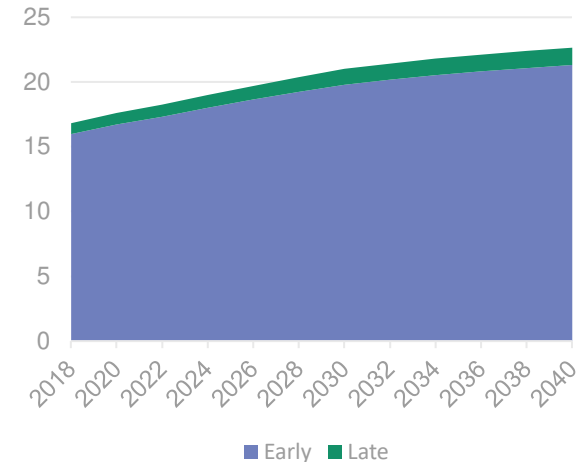
Sarconeos (BIO101) for DMD

Macuneos for dry AMD

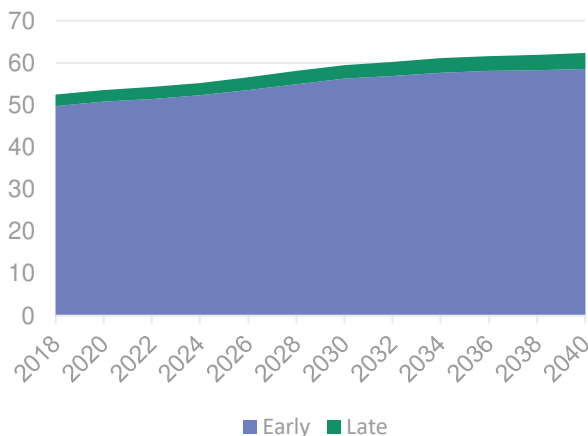
Dry AMD is an unmet medical need with no approved drugs

- AMD is a common eye disorder among people over 50 that affects the central part of the retina, known as the macula
- Can impair functions such as reading, driving, and facial recognition, and has a major impact on QoL and the ability to live independently
- Multifactorial disease that we believe is mainly caused by accumulation of A2E (a byproduct of the visual pigment cycle) that leads to retinal degeneration

Projection of AMD prevalence in North America (in M, mean projection)¹



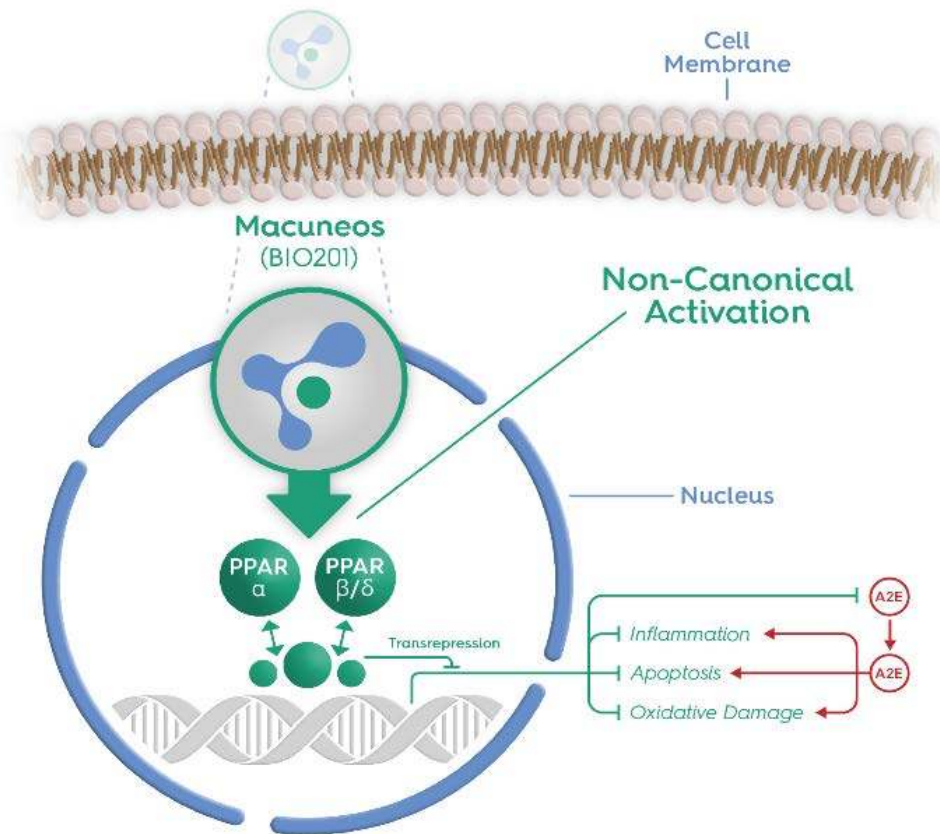
Projection of AMD prevalence in Europe (in M, mean projection)¹



- 85 - 90% of AMD patients have dry AMD in some form; either early, intermediate or late stage, known as geographic atrophy (GA)
- No approved treatments for any stage of dry AMD, including GA
- We are developing Macuneos to treat patients with intermediate dry AMD to prevent the development to advanced stages (wet AMD + GA), which lead to severe vision loss

Macuneos mechanism of action: Non-canonical activation of PPARs

- We believe Macuneos potentially counteracts the phototoxic effects of A2E by selective non-canonical activation of the transrepressive activity of PPAR α and PPAR β/δ in the retina
- Most other PPAR ligands mainly exhibit canonical activity and are associated with side effects



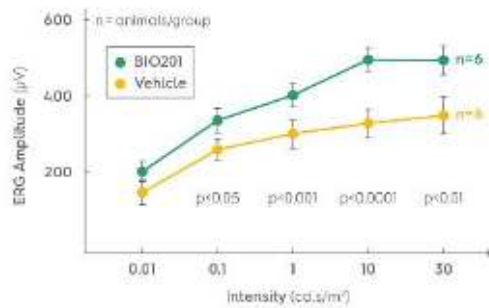
Anti-inflammatory activity (promotes the expression of anti-inflammatory genes)

Anti-oxidant activity (promotes the expression of anti-oxidant genes)

Anti-apoptotic activity (enables pathways that prevent cell death)

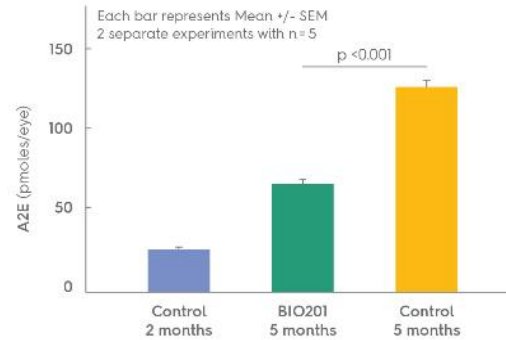
Macuneos protects the retina in rodent models of dry AMD and Stargardt disease

Preservation of visual function in mice



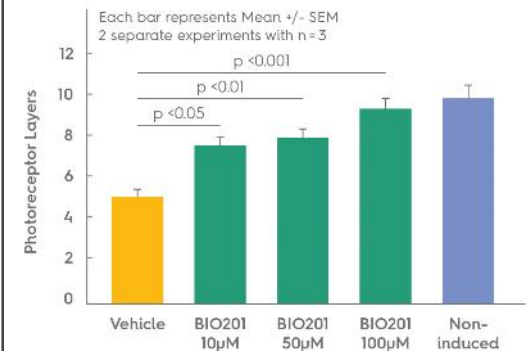
Chronic oral administration of Macuneos for 3 and 6 months **increases ERG amplitude** in ABCA4^{-/-} RDH8^{-/-} mice

Reduced A2E accumulation in mice



Chronic oral administration of Macuneos decreased A2E accumulation by **approximately 45%** in Abca4^{-/-} Rdh8^{-/-} mice as compared to vehicle control mice

Dose-dependent protection of retina integrity in rats



Intraperitoneal injection of Macuneos preserved the number of layers of photoreceptors by **up to approximately 90%** at the maximum dose of 100µM in a standard blue light rat model

Results were presented in May 2016 at the ARVO conference in Seattle, WA in a poster presentation and published in PLoSONE (Fontaine et al.; 2016).

Appendix



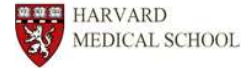
Scientific advisory board



University of Pittsburgh



School of
Medicine



Pr. Jean Mariani

- Professor of neuroscience and biology of aging and Director of Charles Foix Institute of Longevity at Sorbonne University
- Emeritus Professor (PU-PH) at the Sorbonne University's School of Medicine
- Member of the Board and Executive committee of Gerond'IF



Dr. Roger Fielding

- Professor of Medicine, Tufts University School of Medicine
- Director and Sr. Scientist Jean Mayer USDA Human Nutrition Research Center on Aging



René Lafont

- Professor emeritus and former Dean of the life sciences department at Sorbonne University
- 185 scientific articles + 59 reviews and book chapters



Dr. Thomas Voit

- Professor, University College London
- Director of the Research Centre of the Great Ormond Street Hospital for Children



Pr. Jose-Alain Sahel

- Chair of the department of ophthalmology at University of Pittsburgh School of Medicine and director of the UPMC eye center
- Founder and director of the Vision Institute in Paris and professor at the Sorbonne's medical school



Dr. Ivana Kim

- Associate Professor Harvard Medical School, Massachusetts Eye and Ear
- Co-Director of the Harvard Medical School Department of Ophthalmology AMD Center of Excellence; Associate Scientist, Massachusetts Eye and Ear

Board of directors

MONSANTO 



genzyme



 MERRIMACK®



DRONE VOLT®



Stanislas Veillet - Founder & CEO

- PhD in genetics, AgroParisTech
- 25+ years in biotech; Pharmacia-Monsanto, Danone Group



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- Member of the Board and Executive committee of Gerond'IF



Jean M. Franchi

- Merrimack Pharma CFO
- 30+ years as finance director, including 15 years at Genzyme



Dimitri Batsis

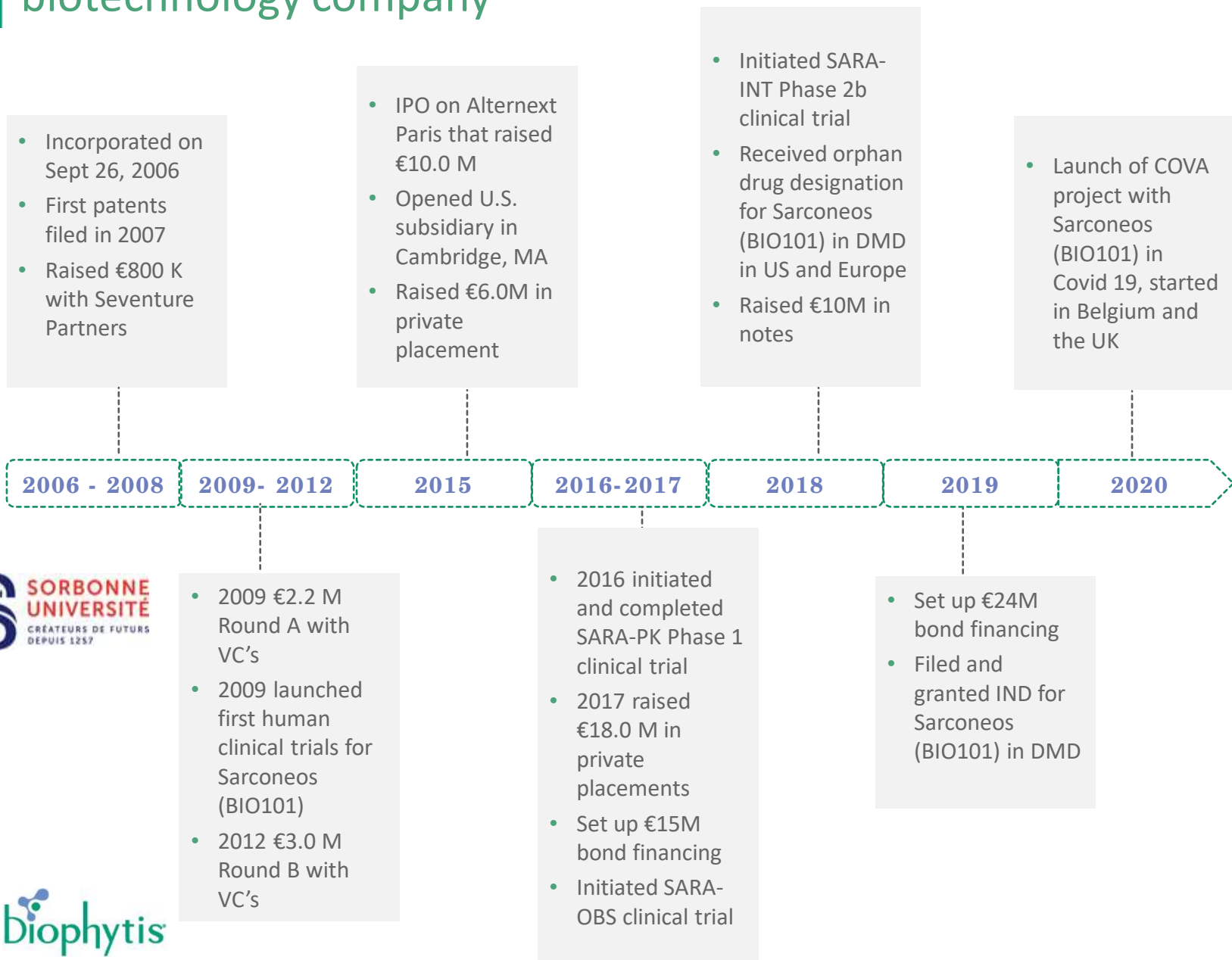
- Entrepreneur
- Founder of Zeni Corporation, Drone Volt
- 20 years in the technology sector



Nadine Coulm

- IR Director for Korian
- 20 years of IR experience with FNAC, BNP Paribas, Danone & Casino

From a Sorbonne University spin-off to a successful clinical-stage biotechnology company



Intellectual Property portfolio – Covid-19 & Neuromuscular diseases

- We hold exclusive commercial rights through licenses of each of our drug candidates.
- IP is jointly owned with Sorbonne University & sometimes with other academic research institutions¹.
- Patent portfolio covers 10 patent families, including a total of 18 co-owned issued patents and a total of 28 co-owned patent applications.
- Issued patents: 3 European, 2 U.S., and 13 in ROW, including **China, Japan**.
- Pending applications: 2 European, 4 U.S., and 21 in ROW, including **China, Japan, South Korea**



Neuromuscular diseases

10 families of patents covering production process, second generation compounds and various applications such as sarcopenia, myopathies (DMD), disuse atrophy, spinal muscular atrophy, respiratory function and Covid 19

Intellectual Property portfolio – Retinal Diseases

- We hold exclusive commercial rights through licenses of each of our drug candidates.
- IP is jointly owned with Sorbonne University & sometimes with other academic research institutions.
- Patent portfolio covers 5 patent families, including a total of 12 co-owned issued patents and a total of 18 co-owned patent applications.
- Issued patents: 4 European, 2 U.S., and 6 in ROW, including **China, Japan**.
- Pending applications: 1 U.S., and 17 in ROW, including **China, Japan, South Korea**.



Retinal diseases

5 families of patents covering 2 classes of compounds and their applications for dry age-related macular degeneration (AMD) and Stargardt disease

CONTACTS:

- Stanislas Veillet – CEO
stanislas.veillet@biophytis.com
- Evelyne NGUYEN – CFO
evelyne.nguyen@biophytis.com

Thank you

Investor relations: investors@biophytis.com

Website: www.biophytis.com